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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/980,442	03/21/2002	Marcel Garnier	Garnier-3	3607

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EXAMINER

KERNS, KEVIN P

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 08/29/2003

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/980,442

Applicant(s)

GARNIER ET AL.

Examiner

Kevin P. Kerns

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☒ Claim(s) 2 and 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.
2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a

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nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Objections

3. Claims 2 and 5 are objected to because of the following informalities: in the 1st line of claim 2, "having" should be changed to "has" after "brake". In the 4th line of claim 5, "at least one inductor" should be changed to "at least two inductors", as multiple inductors are required for proper operation of the apparatus and its process.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Kubota et al. (US 5,307,863).

Kubota et al. disclose a method and apparatus for continuous casting of a cast slab by means of a linearly shifting (sliding) magnetic field as an electromagnetic brake for flow control to achieve an average flow speed 27 (V), in which the apparatus further includes an immersion nozzle 8 with two exit ports 29 through which molten metal flows

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(abstract; column 3, lines 10-44; column 6, lines 58-67; column 7, lines 1-67; column 8, lines 1-34; column 9, lines 40-48; column 10, lines 11-34; column 11, lines 27-53; column 16, lines 1-28; and Figures 3, 5, and 6). The apparatus contains magnetic field generators 18 (inductors) that would (inherently) be controlled in terms of voltage or current by control means at a central processing station (column 10, lines 11-34; and Figure 5), and Figure 6 shows (independent) control of independent supply circuits (two sets of symbols R, T, and S). In addition, it is noted that the applicants' admitted prior art, in reference to Kubota et al. in EP 0 550 785 (analogous to US 5,307,863), states that the present invention does not modify the structure of conventional installations (applicants' admitted prior art; specification -- page 7, lines 13-17).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (US 5,307,863) in view of Eriksson et al. (WO 99/11403).

Kubota et al. disclose the apparatus claim limitations set forth in claims 5-7 above. Although the measuring of the voltage and current to extract a flow speed (also in view of the claim 2 equation) are not specifically disclosed by Kubota et al., Kubota et al. disclose that the inconvenience of not being able to measure the average flow speed is overcome by their method, such that the shifting speed of the linearly shifting magnetic field is controlled to effectively brake a flow speed of molten steel (column 8, lines 47-62). One of ordinary skill in the art would have recognized that the parameters and equations set forth by Kubota et al., would enable measurement of dynamic flow speeds at regions within the continuous casting mold, as the apparatus contains molten metal sensors 14, 17, a (servo) control device 16, and magnetic field generators 18 (inductors) that are controlled in terms of voltage, current, and frequency, and including

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known flow speeds, as set forth by a plurality of equations disclosed by Kubota et al. (column 6, lines 49-67; column 7, lines 1-67; column 8, lines 1-19; and column 9, lines 25-48). The additional control steps in the process of Kubota et al. are advantageous for reducing waves (which lead to inclusions) in the casting of a slab under the flexible control condition of operation (Kubota et al.; column 3, lines 10-13). Kubota et al. do not specifically set forth the control of one of current or voltage (while the other is kept constant) in their constant power source.

However, Eriksson et al. disclose a method and device for control of metal flow during continuous casting via electromagnetic fields, in which the method includes providing primary and secondary flow rates to be monitored and controlled by a control unit 44, resulting in analysis and regulation of the magnetic flux density, which is accomplished by control of one or more of the amperage or the voltage of the electromagnets (constant power source), such that metal flows at portions of the continuous casting mold would be accurately monitored and controlled independently to avoid unsymmetrical or unbalanced overall flow, resulting in the reduction of defects in the cast product (abstract; page 1, lines 1-6; page 5, line 1 through page 9, line 3; page 13, line 3 through page 19; and Figures 1-8).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the method and apparatus for continuous casting of a cast slab by means of a linearly shifting (sliding) magnetic field as an electromagnetic brake for flow control, as disclosed by Kubota et al., by adding the specified control of one or more of the amperage or the voltage of the electromagnets,

as taught by Eriksson et al., in order to accurately and independently monitor and control metal flows at portions of the continuous casting mold to avoid unsymmetrical or unbalanced overall flow, resulting in the reduction of defects in the cast product (Eriksson et al.; abstract; page 5, paragraphs 1-3; and page 14, lines 1-11).

Response to Arguments

10. The examiner acknowledges the applicants' amendment (paper #9) received by the USPTO on June 30, 2003. The applicants' amendment has overcome prior 35 USC 112, 1st and 2nd paragraph rejections. However, the applicants have not addressed the requirement for specification headings (see paragraph 2 above), and the abstract was not submitted on a separate sheet (see paragraph 1 above). New claim objections have been raised by the amendment (see paragraph 3 above). Claims 1-8 remain under consideration in the application.

11. Applicants' arguments filed June 30, 2003 (paper #9 – with respect to the 35 USC 102(b) rejection of claims 5-7) have been fully considered but they are not persuasive.

With regard to the applicants' arguments on page 7 of the amendment, the addition of the "independent of other inductors" limitation is insufficient to overcome the prior art (see paragraph 5 above, which also includes a new underlined portion relating to Figure 6 of Kubota et al.). As mentioned above, "at least one inductor" should be changed to "at least two inductors" for proper operation of the apparatus. Importantly,

the applicants have not addressed their admitted prior art that states, "the present invention does not modify the structure of conventional installations" (applicants' admitted prior art; specification -- page 7, lines 13-17). The "conventional installation" most closely related to the applicants' invention is set forth in the Kubota et al. reference. If there is no modification to the structure of the apparatus set forth in the prior art, then all apparatus claims would clearly be rejectable under 35 USC 102(b). The applicants are kindly requested to address this critical issue in their next response.

12. Applicant's arguments with respect to claims 1-4 and 8 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (703) 305-3472. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

KPK
kpk
August 13, 2003



M. ALEXANDRA ELVE
PRIMARY EXAMINER